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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/822,107

04/09/2004

Lawrence S. Melvin III

SYN-0567

1709

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7590

06/30/2006

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EXAMINER

BOWERS, BRANDON

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/822,107

Applicant(s)

MELVIN, LAWRENCE S.

Examiner

Brandon W. Bowers

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-8 and 11-36 is/are rejected.
- 7) ☒ Claim(s) 3,4,9 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 27-34 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Programs taken alone are non-statutory. In order for these claims to become statutory, they must be re-written as computer readable medium storing instructions type claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims are rejected under 35 U.S.C. 102(e) as being anticipated by Tanaka et al.

US Patent Application Publication No. 2003/0140330.

In reference to claims 1, 7, and 35, Tanaka teaches a method of segmenting a mask layout and assigning an evaluation point to each segment (as exemplified in figure 2), and performing a rough model based OPC wherein correction amounts are found at each evaluation point (paragraph 0037) by determining an aerial image intensity at an

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evaluation point, and shifts are determined according to the aerial image gradient (paragraphs 0055-57).

In reference to claims 2 and 8, Tanaka teaches correcting all the segments (paragraph 0037).

In reference to claims 5-6 and 11-12, Tanaka teaches wherein the segments include and are influenced by a line end, an outside corner, an inside corner, a slot and a jog (paragraph 0036),

In reference to claims 13 and 27, Tanaka teaches receiving a mask layout (figure 5, s111), performing a rough model based OPC (figure 5, s114) which is equivalent to performing interpretation filtering, and running precise model based OPC on the rough model based OPC (figure 5, s115).

In reference to claims 14 and 28, Tanaka teaches dissecting edges into segments (figure 5, s113).

In reference to claims 15-16 and 29-30, Tanaka teaches wherein the segments are two dimensional (as exemplified in Figure 2b).

In reference to claims 17-18 and 31-32, Tanaka teaches wherein the rough OPC is performed on corners (paragraph 0060).

In reference to claims 19-20 and 33-34, Tanaka teaches computing aerial image gradients and using the aerial image gradients to determine normal shifts (paragraphs 0055-57).

In reference to claims 21-24, Tanaka teaches clean-up operations (paragraph 0081)

In reference to claim 25, Tanaka teaches performing the method of claims 13 on a software tool (paragraph 0003).

In reference to claim 36, Tanaka teaches a constant in the equation (Paragraph 0055).

Allowable Subject Matter

Claims 3-4 and 9-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Prior art of record does not teach wherein determining the normal shift for the two-dimensional segment includes: determining a nominal Shift, a maximum normal shift component due to the aerial image gradient, a measured angle of the aerial image gradient, a base angle where no shift is applied, a maximum normal shift component due to the aerial image magnitude, a measured aerial image magnitude, and a base magnitude where no shift is applied.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon W. Bowers whose telephone number is (571)272-1888. The examiner can normally be reached on 8:30 am until 5:00 pm Monday through Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on (571)272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BWB


JACK CHIANG
SUPERVISORY PATENT EXAMINER